

EPA I.D. NUMBER (copy from Item 1 of Form 1)

Please print or type in the unshaded areas only

Form
2D
NPDES



New Sources and New Dischargers Application for Permit to Discharge Process Wastewater

I. Outfall Location

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

Outfall Number		Latitude			Longitude		Receiving Water (name)
(list)	Deg.	Min.	Sec.	Deg.	Min.	Sec.	NOT THE PROPERTY OF THE PROPER
002	39	. 2	36	-77	25	43	Unnamed tributary to Broad Run
003	39	1	27	-77	27	15	Unnamed tributary to Broad Run
004	39	1	15	-77	27	10	Unnamed tributary to Broad Run
005	39	0	57	-77	27	27	Unnamed tributary to Broad Run
006	39	1	8	-77	27	34	Unnamed tributary to Broad Run

II. Discharge Date (When do you expect to begin discharging?)

04/01/2016

III. Flows, Sources of Pollution, and Treatment Technologies

A. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

Outfall Number	Operations Contributing Flow (List)	2. Average Flow (Include Units)	3. Treatment (Description or List codes from Table 2D-1)
002	Publicly Owned Treatment Wrk	1000 gpm for 45 minutes,2/YR	Reclaim water from POTW w/ 3-A(MBR), 3-D(BNR),2-A(GAC),2-H(UV),4-C & 2-F
003	Publicly Owned Treatment Wrk	540 gpm for 15 minutes,2/YR	Reclaim water from POTW w/ 3-A(MBR), 3-D(BNR),2-A(GAC),2-H(UV),4-C & 2-F
004	Publicly Owned Treatment Wrk	550 gpm for 15 minutes,2/YR	Reclaim water from POTW w/ 3-A(MBR), 3-D(BNR),2-A(GAC),2-H(UV),4-C & 2-F
005	Publicly Owned Treatment Wrk	1820 gpm for 20 minutes,2/YR	Reclaim water from POTW w/ 3-A(MBR), 3-D(BNR),2-A(GAC),2-H(UV),4-C & 2-F
006	Publicly Owned Treatment Wrk	1400 gpm for 25 minutes,2/YR	Reclaim water from POTW w/ 3-A(MBR), 3-D(BNR),2-A(GAC),2-H(UV),4-C, & 2-F
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B. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item III-A. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined (e.g., for certain mining activities), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.							
C. Except for s	C. Except for storm runoff, leaks, or spills, will any of the discharges described in Items III-A be intermittent or seasonal? YES (complete the following table) NO (go to Section IV)						
	A 15. G		1. Frequency		2. Flow		
	Outfall Number	a. Da Per Wi (specify au	eek Per Year	a. Maximum Daily Flow Rate (in mga')	b. Maximum Total Volume (specify with units)	c. Duration (in days)	
002			2 Days/Yr	0.045 mgd	0.090 mg	0.031 each	
003		no and the second	2 Days/Yr	0.008 mgd	0.016 mg	0.010 each	
004		NO. THE SECTION OF TH	2 Days/Yr	0.008 mgd	0.016 mg	0.010 each	
005		IS MODIFIED AND AND AND AND AND AND AND AND AND AN	2 Days/Yr	0.036 mgd	0.072 mg	0.014 each	
006			2 Days/Yr	0.035 mgd	0.070 mg	0.017 each	
production level	i, not design), express	ed in the terms and ur	or NSPS, for each outfall I nits used in the applicable e alternative estimates (attach	ffluent auideline or N	rel of production (pr NSPS, for each of th	rojection of actual ne first 3 years of	
Year	A. Quantity Per Day	B. Units Of Measure	The state of the s	a separate sneety. eration, Product, Mat	erial, etc. (specify)	**************************************	
N/A	N/A	N/A	N/A	ONE OF THE PROPERTY OF THE PRO	TO A TO THE RESIDENCE OF THE PARTY OF THE PA	acina del Timore e Morto de Carpo de Colono Carpo de Car	
				BOTT STATE (NEW ADMINISTRATION AND ADMINISTRATION ADMINISTRATION AND ADMINISTRATION AND ADMINISTRATION ADMINISTRATION AND ADMIN		THE PROPERTY AND A SECOND ASSESSMENT ASSESSM	

CONTINUED FROM THE FRONT	EPA I.D. NUMBER (copy from Item 1 of Form 1)	Outfall Number
		002

A and B: These items require you to report estimated amounts (both concentration and mass) of the pollutants to be discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and should be completed in accordance with the specific instructions for that part. Data for each outfall should be on a separate page. Attach additional sheets of paper if necessary.

General Instructions (See table 2D-2 for Pollutants)

indirectly through limitations on an i	indicator pollutant.	***************************************	
1. Pollutant	2. Maximum Daily Value (include units)	3. Average Daily Value (include units)	4. Source (see instructions)
BOD	1.26 mg/L 0.47 lbs	0.78 mg/L 0.29 lbs	Grab samples taken at discharge to system
COD	23.9 mg/L 9.0 lbs	8.62 mg/L 3.23 lbs	Grab samples taken at discharge to system
тос	No Data	No Data	Not Monitored
TSS	4.10 mg/L 1.54 lbs	0.16 mg/L 0.01 1 bs	Grab samples taken at discharge to system
Ammonia	0.9 mg/L 0.34 165	0.25 mg/L 0.09 165	Monitoring of Outfall 001
Temperature - summer	25.3	22.0	Monitoring of Outfall 001
Temperature - winter	22.9	17.2	Monitoring of Outfall 001
рн	7.5	6.9	Grab samples taken at discharge to system
Flow	0.045 MG	0.045 MG	Flow discharged to system while flushing
Chloroform	No Data	0.0005 lbs	Monitoring of Outfall ool
Phenol	No Data	0.0013 mg/L 0.0005 lbs	Monitoring of Outfall 001
Zinc	No Data	0.0755 my/L	Monitoring of Outfall 001 Monitoring of Outfall 001
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CONTINUED FROM THE FRONT	EPA I.D. NUMBER (copy from Item 1 of Form 1)	Outfall Number
		003

A and B: These items require you to report estimated amounts (both concentration and mass) of the pollutants to be discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and should be completed in accordance with the specific instructions for that part. Data for each outfall should be on a separate page. Attach additional sheets of paper if necessary.

General Instructions (See table 2D-2 for Pollutants)

indirectly through limitations on an in	dicator pollutant.	· ·	
1. Pollutant	2. Maximum Daily Value (include units)	3. Average Daily Value (include units)	4. Source (see instructions)
BOD	1.26 mg/L 0.08 lbs	0.78 mg/L 0.05 lbs	Grab samples taken at discharge to system
COD	23.9 my/L 1.60 lbs	8.62 mg/L. 0.58 lbs	Grab samples taken at discharge to system
тос	No Data	No Data	Not Monitored
TSS	4.10 mg/L 0.27 165	0.16 mg/L 0.01 165	Grab samples taken at discharge to system
Ammonia			Monitoring of Outfall 001
Temperature - summer	25.3	22.0	Monitoring of Outfall 001
Temperature - winter	22.9	17.2	Monitoring of Outfall 001
рн	7.5	6.9	Grab samples taken at discharge to system
Flow	0.008 MG	0.008 MG	Flow discharged to system while flushing
			÷
Chloroform	No Data	0.0013 mg/L 0.00009 165	Monitoring of Outfall ool
Phenol	No Data No Data	0.0013 mg/L	Monitoring of Outfall 001
Zinc	No Data	0.0755mg/L 0.005 lbs	Monitoring of Outfall out
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CONTINUED FROM THE FRONT	EPA I.D. NUMBER (copy from Item 1 of Form 1)	Outfall Number
		004

A and B: These items require you to report estimated amounts (both concentration and mass) of the pollutants to be discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and should be completed in accordance with the specific instructions for that part. Data for each outfall should be on a separate page. Attach additional sheets of paper if necessary.

General instructions (See table 2D-2 for Pollutants)

indirectly through limitations on an ir	ndicator pollutant.		and an early by an ember initiations galaciane of 1401 5 of
1. Pollutant	2. Maximum Daily Value (include units)	3. Average Daily Value (include units)	4. Source (see instructions)
BOD	0.08 lbs	0.78 mg/1.	Grab samples taken at discharge to system
COD	23.9 mg/L 1.60 lbs	8.62 mg/L 0.58 lbs	Grab samples taken at discharge to system
TOC	No Data	No Data	Not Monitored
TSS	4.10 mg/L 0.27 165	0.01 165	Grab samples taken at discharge to system
Ammonia	0.9 mg/L	0.25 mg/L 0.02 ibs	Monitoring of Outfall 001
Temperature - summer	25.3	22.0	Monitoring of Outfall 001
Temperature - winter	22.9	17.2	Monitoring of Outfall 001
рн	7.5	6.9	Grab samples taken at discharge to system
Flow	0.008 MG	0.008 MG	Flow discharged to system while flushing
		To the state of th	
Chloroform	No Data	0.0013mg/L	Monitoring of Outfall on
Phenol	No Data No Data No Data	0.0013 mg/L	Monitoring of Outfall on
Zinc	No Daita	0.0755mg/L	Monitoring of Dutfall our
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A and B: These items require you to report estimated amounts (both concentration and mass) of the pollutants to be discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and should be completed in accordance with the specific instructions for that part. Data for each outfall should be on a separate page. Attach additional sheets of paper if necessary.

General Instructions (See table 2D-2 for Pollutarits)

indirectly through limitations on an i	indicator pollutant.	,	te initiations guideline of NSFS of
1. Pollutant	2. Maximum Daily Value (include units)	3. Average Daily Value (include units)	4. Source (see instructions)
BOD	1.26 mg/L 0.38 lbs	0.78 mg/L 0.23 lbs	Grab samples taken at discharge to system
COD	23.9 mg/4, 7.17 164	8.62 mg/L 2.59 166	Grab samples taken at discharge to system
TOC	No Data	No Data	Not Monitored
TSS	4.10 mg/L 1.23 lbs	0.16 mg/L 0.05 lbs	Grab samples taken at discharge to system
Ammonia	0.9 mg/L 0.27 lbs	0.25 mg/L 0.08 lbs	Monitoring of Outfall 001
Temperature - summer	25.3	22.0	Monitoring of Outfall 001
Temperature - winter	22.9	17.2	Monitoring of Outfall 001
Нд	7.5	6.9	Grab samples taken at discharge to system
Flow	0.036 MG	0.036 MG	Flow discharged to system while flushing
		The state of the s	
Chloroform	No Data	0.0004 lbs	Monitoring of Outfall 001
Phenol	No Data No Data	0.0013 mg/L	Monitoring of Outfall 001
Zinc	No Data	0.0755mg/L	Monitoring of Outfall 001
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CONTINUED FROM THE FRONT	EPA I.D. NUMBER (copy from Item 1 of Form 1)	Outfall Number
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A and B; These items require you to report estimated amounts (both concentration and mass) of the pollutants to be discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and should be completed in accordance with the specific instructions for that part. Data for each outfall should be on a separate page. Attach additional sheets of paper if necessary.

General Instructions (See table 2D-2 for Pollutants)

indirectly through limitations on an indi	icator pollutant.		to minded directly by an emdent intinations guideline of 145F5 of
1. Pollutant	2. Maximum Daily Value (include units)	3. Average Daily Value (include units)	4. Source (see instructions)
вор	1.26 mg/L 0.38 lbs	0.78 mg/L 0.23 lbs	Grab samples taken at discharge to system
COD	23.9 mg/L 6.98 165	8.62 mg/L 2.52 lbs	Grab samples taken at discharge to system
TOC	No Data	No Data	Not Monitored
TSS	4.10 mg/L 1.20 lbs	0.16 mg/L 0.05 1 bs	Grab samples taken at discharge to system
Ammonia	0.9 mg/L 0.26 165	0.25 mg/L 0.07 lbs	Monitoring of Outfall 001
Temperature - summer	25.3	22.0	Monitoring of Outfall 001
Temperature - winter	22.9	17.2	Monitoring of Outfall 001
рН	7.5	6.9	Grab samples taken at discharge to system
Flow	0.035 MG	0.035 MG	Flow discharged to system while flushing
Chloroform Phenol	No Data	0.0013 mg/L	
Phenol	No Data No Data No Data	0.0013 mg/L 0.00038 165	
Zinc	No Data	0.0755 mg/L	-
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Use the space below to list any of the podischarged from any outfall. For every pollular to the podischarged from any outfall.	Illutants listed in Table 2D-3 of the instructions which you know or have reason to believe will be stant you list, briefly describe the reasons you believe it will be present.
1. Pollutant	2. Reason for Discharge
Ammonia	See Table V-A&B
Chloroform	See Table V-A&B
Phenol	See Table V-A&B
11.0	
VI. Engineering Report on Wastewater Treatn	
appropriate box below.	rning your wastewater treatment, including engineering reports or pilot plant studies, check the
Report Available	No Report
production processes, wastewater constitue	
	Location N/A
14/14	N/A
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VII. Other Information (Optional)

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations for the proposed facility. Attach additional sheets if necessary.

Loudoun Water (LW) provides water supply and wastewater disposal to the unincorporated areas of Loudoun County. This area primarily includes the residential, commercial, and industrial customers living east of US Route 15 to the Loudoun-Fairfax County line. Within this area are numerous commercial and industrial customers that use significant quantities of drinking water for purposes other than human consumption.

Also within this area Loudoun water operates the Broad Run Water Reclamation Facility (BRWRF). The facility produces a highly treated effluent through the use of preliminary screening and primary treatment, activated sludge BNR treatment, membrane filtration, granular activated carbon, and ultra-violet disinfection. The effluent meets all state criterions for Level 1 Reuse Water, as listed in the Virginia Water Reclamation and Reuse Regulation (9VAC25-740-90).

The Reclaim Water Supply Program (ReWSP) was developed in 2009, with an initial demand projection of 4.5-5.5 mgd, to provide reclaimed water to projected light industrial and commercial customers within a service area of about 2-3 miles radius around the BRWRF. The original service concept for the program was based on a low pressure, PVC-pipe system that would make the reclaimed water available to customers at their property line. Each property would install the necessary infrastructure (storage tanks, booster pumps, chemical treatment, etc.) to meet their specific needs. The conceptual design specifically discarded any requirement for tailoring reclaimed water treatment to meet specific customer needs.

The ReWSP system has been in operation since late 2010. Supply in the past consisted of a direct discharge from the BRWRF Plant Water Pumps (W3 System) into the PVC-pipe distribution network. Sodium hypochlorite for disinfection, as required by state regulation, was added directly to the discharge. The system operation is currently monitored by SCADA, and customer demands are measured and recorded in real time by billing meters.

The system has operated reasonably well but has required significant operator time to meet customer demands, and has created a burden on the BRWRF staff. To better address varying demands of the customers of the system, Loudoun Water has recently completed construction of a Reclaim Water Pump Station and Storage Facility (ReWPS) at the BRWRF that includes four variable speed pumps, a sodium hypochlorite disinfection feed, and two, 1.5-MG, storage tanks. This facility only very recently came on line. Operational experience to date has demonstrated a need to be able to flush the system on an as needed basis to provide satifactory water quality in the distribution system.

Loudoun Water proposes to flush the system twice yearly through five outfall loacations listed herein. Discharge rates for each location have been determined by hydraulic model to achieve flow velocities in the system of 2.7-3.0 feet per second. Flushing durations have also been estimated to provide sufficient flow volumes to obtain a complete exchange of water in the system. Of the five locations, one location discharges to an open channel, the other four locations discharge to Loudoun County storm drains. All locations discharge to unnamed tributaries of Broad Run.

VIII. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name and Official Title (type or print)	B. Phone No.
Charles A. Logue, PE - Exec Dir, Loudoun Water - O&M Division	(571) 291-7976
C. Signature	D. Date Signed 12 Nov 15
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